

RECORDING REQUESTED BY:

CTIC 401131 RMA

WHEN RECORDED MAIL TO:

NAME MINNA STREET ASSOCIATES  
C/O ASIAN, INC  
MAILING ADDRESS 1670 PINE STREET  
CITY, STATE SAN FRANCISCO, CA  
ZIP CODE 94109

San Francisco Co Recorder's Office  
Bruce Jamison, County Recorder

DOC - 94-F735997-00

Acct i-CHICAGO Title Company

Friday, DEC 30, 1994 08:00:00

REC \$29.00/PAG \$25.00/MIC \$1.00

STP \$24.00

Ttl Pd \$79.00

Nbr-0000290465

REEL G288 IMAGE 0339

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SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE

TITLE(S)

DECLARATION OF COVENANT

RECEIVED  
JAN 11 1995

COVENANT  
TO RESTRICT USE OF PROPERTY  
Located At  
518 Minna Street  
San Francisco, California

*Escrow 401131 RMA  
Lot 152, Block 3726*

Recording Requested By:  
Minna Street Associates  
c/o ASIAN, Inc.  
1670 Pine Street  
San Francisco, CA 94109

When Recorded, Mail To:

Barbara Cook, Chief  
Site Mitigation Branch  
Department of Toxic Substances Control  
700 Heinz Avenue, Suite 200  
Berkeley, California 94710

This Covenant and Agreement ("Covenant") is made on the 14th day of December 1994, by Minna Street Associates ("Covenantor"), which is the owner of record of certain property located at 518 Minna Street, City and County of San Francisco, State of California, described in Exhibit "A" attached hereto and incorporated herein by this reference ("Property"), and by the California Department of Toxic Substances Control ("Department"), with reference to the following facts:

A. The Property consists of one parcel, identified as Lot 152 of Assessor's Block 3726, in the City and County of San Francisco, California. The Property has 10,225 square feet.

The Property is bordered to the north by Mission Street, to the south by Minna Street, to the east by Sixth Street, and to

1 the west by Seventh Street. A map of the Property is attached  
2 hereto as Exhibit B.

3  
4 B. The Property contains hazardous substances. The Property used  
5 to be marshlands which were filled in the late 1800's and  
6 early 1900's for development. The soil beneath the Property  
7 consists of fill and sandy silt. The results of a chemical  
8 analyses of the soil are summarized in Exhibit C. The results  
9 indicate that soil at the site contains carcinogenic  
10 polynuclear aromatic hydrocarbons (PNAs), oil and grease. In  
11 addition, total lead concentrations in samples of the fill  
12 material exceed the total threshold limit concentration for  
13 lead of 1,000 mg/kg, which is the state hazardous waste  
14 criteria according to Title 22 of the California Code of  
15 Regulations.

16  
17 C. The hazardous substances and contaminants found on the  
18 Property are to be contained by the installation of a Cap (as  
19 described in the Cap Management Plan dated November 14, 1994  
20 (Exhibit D) and approved by the Department). If this  
21 containment system were to be damaged by unauthorized  
22 excavation, breaching of the Cap, or impairment of the  
23 groundwater monitoring system, the occupants of the Property  
24 and nearby properties could be exposed to the contaminated  
25 soils. Exposures can take place via in-place contact, surface  
26 water runoff and wind dispersal, resulting in dermal contact,  
27 inhalation, or ingestion by humans or animals. The purposes

1 of the containment system and other mitigation measures are to  
2 eliminate any significant risks to human health and the  
3 environment. A description of potential human health and  
4 environmental effects of contaminants found on the Property is  
5 attached hereto as Exhibit E.

6  
7 D. The Department has determined that deed restrictions need to  
8 be imposed on the Property to ensure full protection of public  
9 health and the environment.

10  
11 E. The Property is presently owned by the Covenantor. The  
12 Property has been developed as affordable multi-family housing  
13 units, and one ground level commercial space.

14  
15 F. Covenantor agrees that in order to protect the present and  
16 future public health and safety and the environment, the  
17 Property shall be used in such a manner as to avoid potential  
18 harm to persons or property which may result from any  
19 hazardous substance remaining on the Property.

20  
21 ARTICLE I

22  
23 GENERAL PROVISIONS

24  
25 1.1 Provisions to Run With the Land. This Covenant sets forth  
26 protective provisions, covenants, restrictions, and conditions,  
27 (collectively referred to as "Restrictions"), upon and subject to

1 which the Property and every portion thereof shall be improved,  
2 held, used, occupied, leased, sold, hypothecated, encumbered,  
3 and/or conveyed. Each and all of the Restrictions shall run with  
4 the land, and pass with each and every portion of the Property, and  
5 shall apply to and bind the respective successors in interest  
6 thereof. Each and all of the Restrictions are imposed upon the  
7 entire Property unless expressly stated as applicable to a specific  
8 portion of the Property. Each and all of the Restrictions are  
9 imposed pursuant to Section 25355.5 of the California Health and  
10 Safety Code and run with the land pursuant to said Section 25355.5.  
11 Each and all of the Restrictions are enforceable by the Department.  
12

13 1.2 Concurrence of Owners Presumed. All purchasers, lessees, or  
14 possessors of any portion of the Property shall be deemed by their  
15 purchase, leasing, or possession of such Property, to be in accord  
16 with the foregoing and to agree for and among themselves, their  
17 heirs, successors, and assignees, and the agents, employees, and  
18 lessees of such owners, heirs, successors, and assignees, that the  
19 Restrictions as herein established must be adhered to for the  
20 benefit of future owners and occupants and that their interest in  
21 the Property shall be subject to the Restrictions contained herein.  
22

23 1.3 Incorporation Into Deeds and Leases. Covenantor agrees that  
24 the Restrictions set out herein shall be incorporated by reference  
25 in each and all deeds and leases of any portion of the Property.  
26  
27

## ARTICLE II

## DEFINITIONS

2.1 Cap. "Cap" shall mean the protective cover used to isolate contaminated soils on the Property from human or environmental exposure. The Cap has been constructed as outlined in Exhibit D attached hereto.

2.2 Department. "Department" shall mean the California State Department of Toxic Substances Control and shall include its successor agencies, if any.

2.3 Improvements. "Improvements" shall mean all buildings, structures, fixtures, roads, driveways, regradings, and paved parking areas, constructed or placed upon any portion of the Property.

2.4 Occupants. "Occupants" shall mean those persons entitled by ownership, leasehold, or other legal relationship to the exclusive right to occupy any portion of the Property.

2.5 Owner. "Owner" shall mean the Covenantor or its successors in interest, including heirs and assigns who hold title to all or any portion of the Property.

## ARTICLE III

## RESTRICTIONS

3.1 Restrictions on Use. Covenantor and Owner agree to restrict the use of the Property as follows:

3.1.1 The use of the Property is restricted to the development, construction, occupancy and maintenance of the affordable multi-family housing units and an 800 square feet ground level commercial space as approved by the Department. No other use shall be allowed without the prior approval of the Department.

3.1.2 The Property shall not be used in such a way that will disturb or interfere with the integrity of any hazardous substance containment or monitoring system.

3.1.3 There shall not be any activity on the Property which will cause any potential harm to public health or safety or the environment.

3.2 Groundwater Monitoring. Covenantor and Owner shall perform and comply with the requirements of the Groundwater Monitoring Plan as approved by the Department for the remediation of the Property.

1 3.3 Operation and Maintenance of the Property. Covenantor and  
2 Owner shall perform and comply with the terms and requirements of  
3 the Operation and Maintenance Agreement to be entered into between  
4 the Department and Covenantor. In particular, Covenantor and Owner  
5 shall comply with the following requirements:

6  
7 3.3.1 The Property shall be used and developed in such a  
8 way as to preserve the integrity of the Cap and the  
9 groundwater monitoring system installed on the  
10 Property.

11  
12 3.3.2 Covenantor and Owner shall notify the Department of  
13 each of the following: (a) the type, cause,  
14 location and date of any disturbance to the Cap  
15 which could affect the ability of the Cap to  
16 contain subsurface hazardous substances on the  
17 Property, and (b) the type and date of repair of  
18 such disturbance. Notification to the Department  
19 and a request for any proposed earth moving or  
20 excavation shall be made by telephone by the end of  
21 the next business day following the discovery of  
22 any Cap disturbance and by registered mail within  
23 five (5) days of both the discovery of Cap  
24 disturbance and the completion of required repairs.

25  
26 3.3.3 The Department or its designated representatives  
27 shall have access to the Property for the purposes



1 of inspection, surveillance, monitoring or other  
2 actions necessary to protect public health, safety  
3 or the environment.  
4

5 3.4 Conveyance of Property. Covenantor and Owner shall provide a  
6 thirty (30) day advance notice to the Department of any sale,  
7 commercial lease, or other conveyance of the Property or an  
8 interest in the Property to a third person. The Department shall  
9 not have the authority to approve, disapprove, or otherwise affect  
10 any sale, lease, or other conveyance of the Property except as  
11 otherwise provided in this Covenant or by operation of the law.  
12

13 3.5 Enforcement. Failure of the Covenantor or Owner to comply  
14 with any of the Restrictions or requirements as set forth in this  
15 Covenant shall be grounds for the Department to require that the  
16 Covenantor or Owner modify or remove any Improvement constructed in  
17 violation of this Covenant. Any violation of the Covenant shall be  
18 grounds for the Department to take enforcement action, including  
19 the filing of an administrative, civil or criminal action, as  
20 provided by law, against the Covenantor or Owner.  
21

22 3.6 Notice in Agreements. Covenantor, Owner and Occupant shall  
23 execute a written instrument which shall accompany all purchase,  
24 lease, sublease, rental agreements, and other conveyance documents  
25 relating to the Property. The instrument shall contain the  
26 following statement:  
27

1 "The land described herein contains hazardous substances.  
2 Such condition renders the land, the property, and the owner,  
3 lessee, or other occupant of the land or property subject to  
4 the requirements, restrictions, provisions, and liabilities  
5 contained in Chapter 6.5 and Chapter 6.8 of Division 20 of the  
6 California Health and Safety Code. This statement is not a  
7 declaration that a hazard exists."  
8

9 ARTICLE IV

10 VARIANCE AND REMOVAL OF RESTRICTIONS  
11

12 4.1 Variance. Any Owner or, with the Owner's consent, any  
13 Occupant of the Property or any portion thereof, may apply to the  
14 Department for a written variance from any of the Restrictions or  
15 requirements of this Covenant. Such application shall be made in  
16 accordance with Section 25233 of the California Health and Safety  
17 Code or any applicable provision then in effect.  
18

19 4.2 Removal of Restrictions. Any Owner or, with the Owner's  
20 consent, any Occupant of the Property or a portion thereof, may  
21 apply to the Department to remove any of the Restrictions or  
22 requirements of this Covenant as they apply to all or any portion  
23 of the Property. Such application shall be made in accordance with  
24 Section 25234 of the California Health and Safety Code or any  
25 applicable provision then in effect.  
26

27 4.3 Term. Unless modified or removed in accordance with Section

1 4.1 or Section 4.2 above, the Restrictions and requirements of this  
2 Covenant shall continue in effect in perpetuity.

3  
4 ARTICLE V

5 MISCELLANEOUS  
6

7 5.1 No Dedication Intended. Nothing set forth herein shall be  
8 construed to be a gift or dedication, or offer of a gift or  
9 dedication, of the Property or any portion thereof, to the general  
10 public for any purposes.

11  
12 5.2 Notices. Whenever any person gives or serves any notice,  
13 demand, or other communication with respect to this Covenant, such  
14 notice, demand, or communication shall be in writing and shall be  
15 sent simultaneously to an authorized representative of the  
16 Covenantor (or Owner) and to the Department, in any certified mail,  
17 with return receipt requested.

18  
19 5.3 Partial Invalidity. If any portion of this Covenant is  
20 determined to be invalid or unenforceable for any reason, the  
21 remaining portion of this Covenant shall remain in full force and  
22 effect.

23  
24 5.4 Recordation. This Covenant shall be executed by the  
25 Covenantor and by the Department. This Covenant shall be recorded  
26 by the Covenantor in the San Francisco County Recorder's Office  
27 within ten (10) days of the date of execution as set forth above.

1 IN WITNESS THEREOF, the Covenantor and the Department execute this  
2 Covenant as of the date set forth above.

3  
4  
5 COVENANTOR: MINNA STREET ASSOCIATES

6  
7 By: 

8 Harold T. Yee

9 Title: Chairman

10 Minna St Assoc

11 Date: 14 Dec 94

12  
13  
14 DEPARTMENT OF TOXIC SUBSTANCES CONTROL

15  
16 By: 

17 Barbara J. Cook

18 Title: SMB Branch Chief

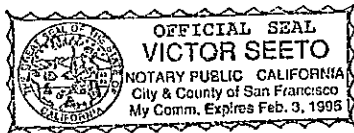
19  
20 Date: 12/14/94

F735997

STATE OF CALIFORNIA )

CITY OF BERKELEY, COUNTY OF ALAMEDA)

On December 14, 1994, before me, Victor Seeto, a Notary Public, personally appeared Harold T. Yee, personally know to me on the basis of satisfactory evidence to be the person whose name is subscribed to within the instrument and acknowledged to me that he executed the same in his authorized capacity and by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.



WITNESS my hand and official seal

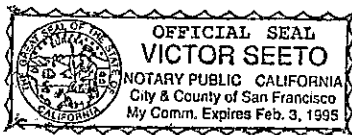
A handwritten signature in cursive script, appearing to read 'Victor Seeto', written over a horizontal line.

Victor Seeto

STATE OF CALIFORNIA )

CITY OF BERKELEY, COUNTY OF ALAMEDA)

On December 14, 1994, before me, Victor Seeto, a Notary Public, personally appeared Barbara J. Cook, known to me on the basis of satisfactory evidence to be the person whose name is subscribed to within the instrument and acknowledged to me that she executed the same in her authorized capacity and by her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.



WITNESS my hand and official seal

A handwritten signature in cursive script, appearing to read 'Victor Seeto', written over a horizontal line.

Victor Seeto

F735997

EXHIBIT A

The land referred to in this report is situated in the State of California, County of San Francisco, and is described as follows:

CITY OF SAN FRANCISCO

BEGINNING at the point of intersection of the southwesterly line of 6th Street, with the northwesterly line of Minna Street; running thence southwesterly along said line of Minna Street 150 feet; thence at a right angle northwesterly 75 feet; thence at a right angle northeasterly 25 feet; thence at a right angle northwesterly 17 feet; thence at a right angle northeasterly 50 feet; thence at a right angle southeasterly 42 feet; thence at a right angel northeasterly 75 feet to the southwesterly line of 6th Street; thence at a right angle southeasterly along said line of 6th Street 50 feet to the point of beginning.

BEING a portion of 100 Vara Block No. 394

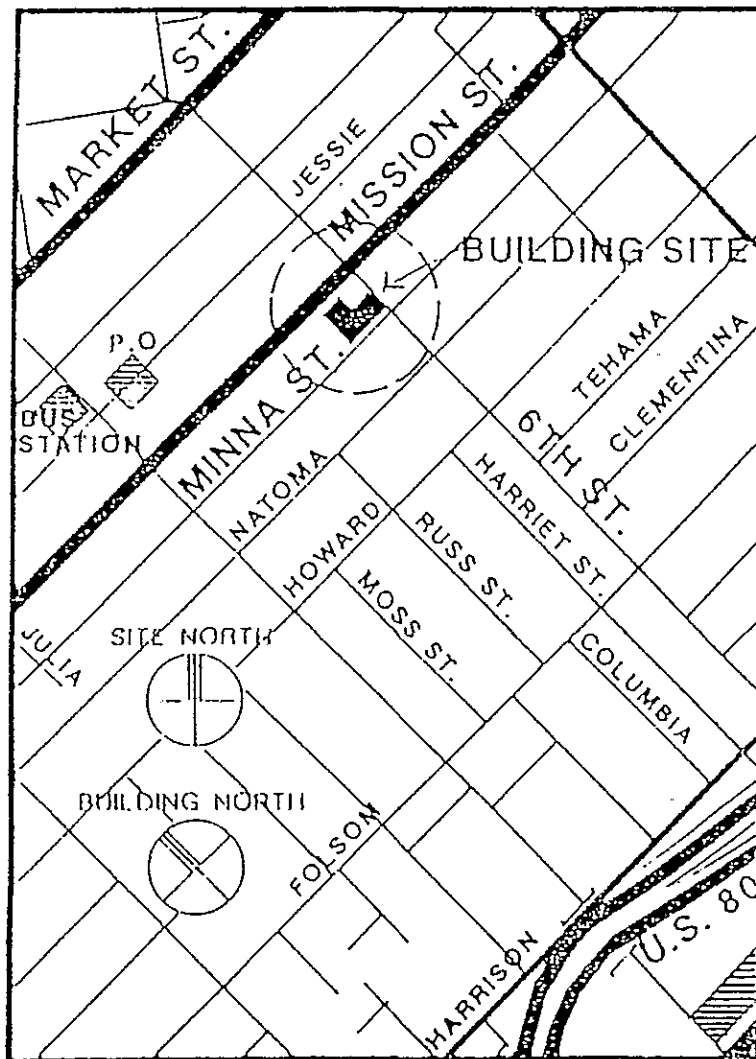
Lot 150, Block 3726.

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EXHIBIT B

518 Minna Street, San Francisco, California

Site Location Map



## Results of Soil Sample Chemical Analysis

Boring No. Depth (feet)	B-1 2.0	B-1 8.5	B-2 1.5	B-2 4.0	B-3 2.0	B-3 4.5	B-3 22.5
TOG	9.0	71	6.0	12	ND	ND	--
TPH	--	--	--	--	--	--	ND
Carcinogenic PNAs							
Acenaphthene	ND	.36	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	.072	6.67	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	6.48	ND	ND	ND	ND	ND
Benzo(b)fluoranthene/ Benzo(k)fluoranthene	ND	8.10	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ND	3.31	ND	ND	ND	ND	ND
Chrysene	.07	7.78	ND	ND	ND	ND	ND
Fluoranthene	.14	11.4	ND	.05	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd) pyrene	ND	9.51	ND	ND	ND	ND	
Naphthalene	ND	1.49	ND	ND	ND	ND	ND
Phenanthrene	.07	6.78	ND	ND	ND	ND	ND
Pyrene	.33	14.1	ND	ND	ND	ND	ND
Metals							
Antimony	--	--	ND	--	--	--	--
Arsenic	--	--	50.2	--	--	--	--
Barium	--	--	224	--	--	--	--
Beryllium	--	--	ND	--	--	--	--
Cadmium	--	--	4.1	--	--	--	--
Chromium	--	--	19.6	--	--	--	--
Cobalt	--	--	5.7	--	--	--	--
Copper	--	--	401	--	--	--	--
Lead	194	2010	12,800	206	1070	1160	--
Mercury	--	--	ND	--	--	--	--
Molybdenum	--	--	ND	--	--	--	--
Nickel	--	--	15.0	--	--	--	--
Selenium	--	--	ND	--	--	--	--
Silver	--	--	ND	--	--	--	--
Thallium	--	--	140	--	--	--	--
Vanadium	--	--	23.3	--	--	--	--
Zinc	--	--	1160	--	--	--	--

-- = Not analyzed.

ND = None detected.

TOG - Total oil and grease

TPH - Total petroleum hydrocarbons

Note: All concentrations in milligrams per kilogram (mg/kg)



November 14, 1994

## **CAP MANAGEMENT PLAN**

**518 Minna Street  
San Francisco, CA 94103**

### **1.0 INTRODUCTION**

This Cap Management Plan (CMP) addresses the construction of the cap at the property located at 518 Minna Street in San Francisco, California ("the site"; Figure 1). It also presents the requirements for the proper maintenance activities associated with the cap. Additionally, notification requirements are detailed in the event of a cap failure.

### **2.0 SITE DESCRIPTION AND HISTORY**

#### **2.1 Description**

The site is a 10,225 square foot parcel within San Francisco Assessor's Block 3726, Lot 152. The site is located on the Northwest corner of Sixth and Minna Streets in the South of Market neighborhood in San Francisco. The site was marshland which was filled in the late 1800's and early 1900's for development. The soil conditions beneath the site consist of fill and sandy silt.

#### **2.2 History**

The site has been occupied by residences, commercial lodging, and parking lots. From roughly 1955 until the San Francisco Redevelopment Agency Acquisition of the site in 1991, it was a paved parking lot. The site is presently owned by Minna Street Associates and has been developed as 24 units of affordable housing.

A Site Assessment Report, entitled Site Assessment, 1009 Mission Street, San Francisco, California, Volumes I and II, dated June, 28, 1993, was prepared by Harding Lawson Associates (HLA) of San Francisco, California in June of 1993. Their report identified the chemicals of concern which may pose adverse health effects to on-site construction workers and future residents at the site. This CMP was written based upon HLA's assessment and recommendations pertaining to the site.

### **3.0 CAP CONSTRUCTION**

#### **3.1 Purpose**

Capping technology shall be used to reduce the potential for direct contact with contaminated soils. Additionally, capping will reduce the potential for water to infiltrate through contaminated soils into the groundwater. The cap or final cover will be designed to minimize infiltration of precipitation. Precipitation collected from roofs, streets, sidewalks, and parking lots will be

directed into storm sewer systems and routed to proper discharge points.

The cap will operate with a minimum of maintenance and promote drainage from its surface while minimizing erosion. It has also been designed so that the settling and subsidence are accommodated to minimize the potential for disruption of continuity and function of the final cover.

### **3.2 Construction Details**

A schematic of the construction details is attached as Figure 2. After excavation to the proper grade, the native soil was compacted. The compacted soil is covered by (in order): a 4" layer of drain rock, a 6 mil polyethylene vapor barrier, and 2" of sand. A 7" concrete post-tensioned slab is poured over the entire site above the 2" layer of sand. There are 58 30' piles and grade beams running throughout the site. A 7" structural slab will insure that the native soil will be permanently encapsulated and that the building will be seismically sound.

### **3.3 Inspection and Maintenance**

Concrete slabs may crack or spall and require maintenance. Visual inspections will be conducted yearly by a registered professional engineer, trained in identifying areas of questionable cap integrity. Additionally, visual inspections will be conducted as warranted. For Example, after seismic activity, the cap will be immediately inspected.

A written record will be kept of the cap inspections for the life of the building. The log will be kept at the site in the building manager's office. At a minimum, the log will include date and time of inspection, person performing inspection, cap condition, and repairs and repair date, if any.

#### **3.3.1 Notification**

In the event cap repairs are required, the property management will be notified immediately. Verbal and written notification will be given to the following individuals:

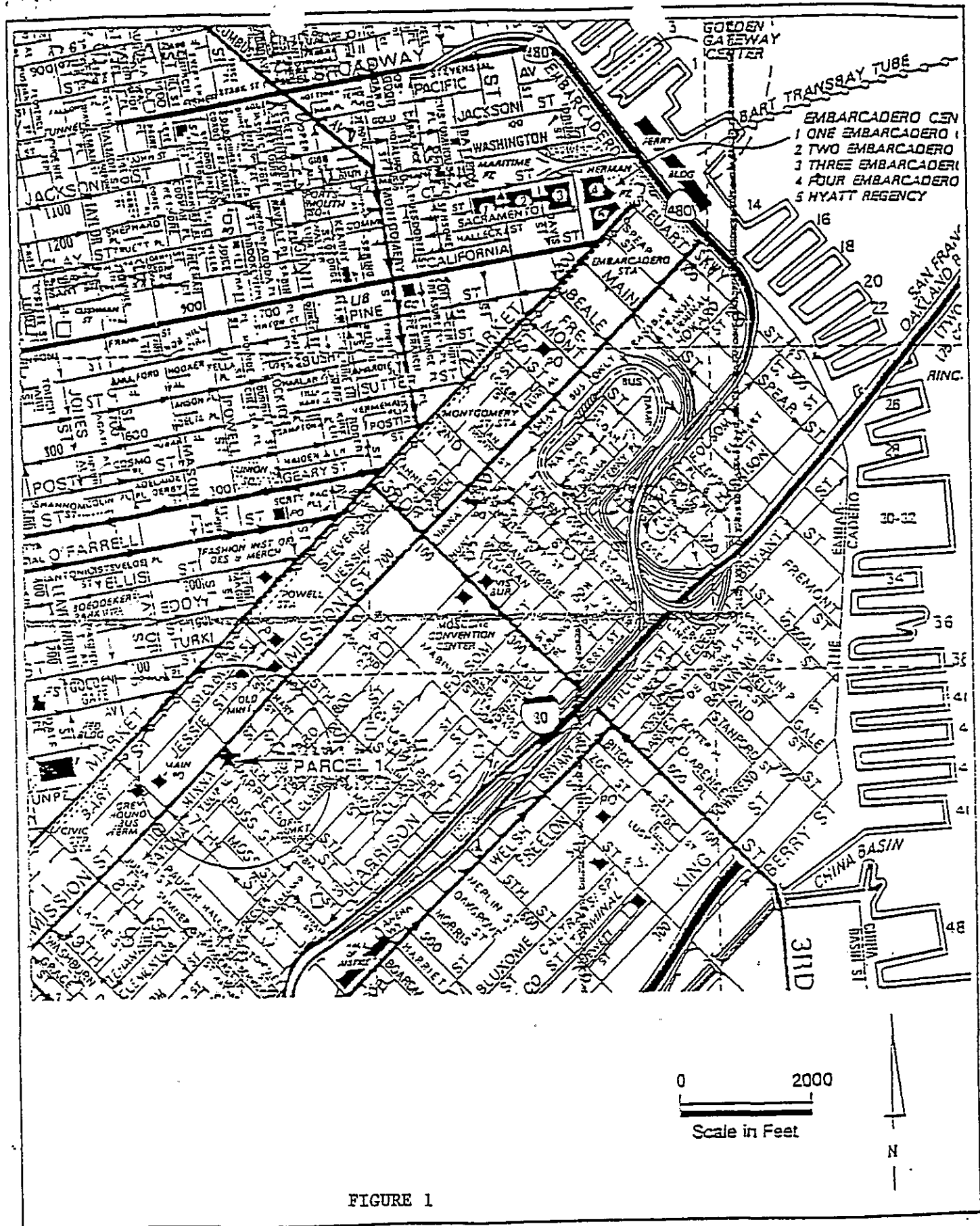
Michael A. Chan  
Minna Street Associates  
1670 Pine Street  
San Francisco, CA 94109  
(415) 928-5910

Pam Hollis  
City and County of San Francisco  
Department of Public Health  
101 Grove Street, Room 214  
San Francisco, CA 94102  
(415) 554-2792

### 3.4 Cap Repair

In the event cracks or exposed soils are encountered, the cap will be repaired immediately.

In the event soils are encountered, they will be immediately contained in Department of Transportation approved containers. The soil will be sampled to facilitate the proper soil disposal, if necessary, at a licensed disposal facility. The area adjacent to the exposed soil will be vacuumed with high efficiency particulate vacuums. The vacuumed material will be handled in the same manner as the containerized soil. cracks will be sealed with a cement similar to that of the cap construction. If possible, pressure grouting will be utilized. The individuals responsible for repairing the cap and/or containerize the soils, must have read and understood the site Health and Safety Plan.



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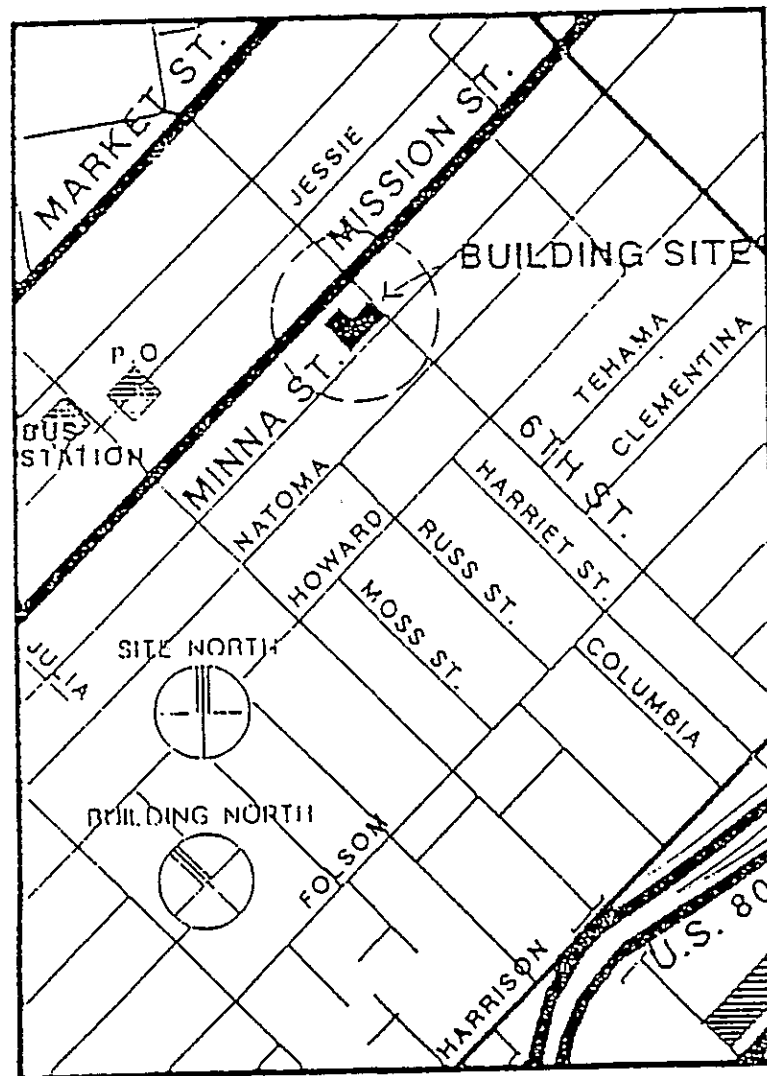


FIGURE 1

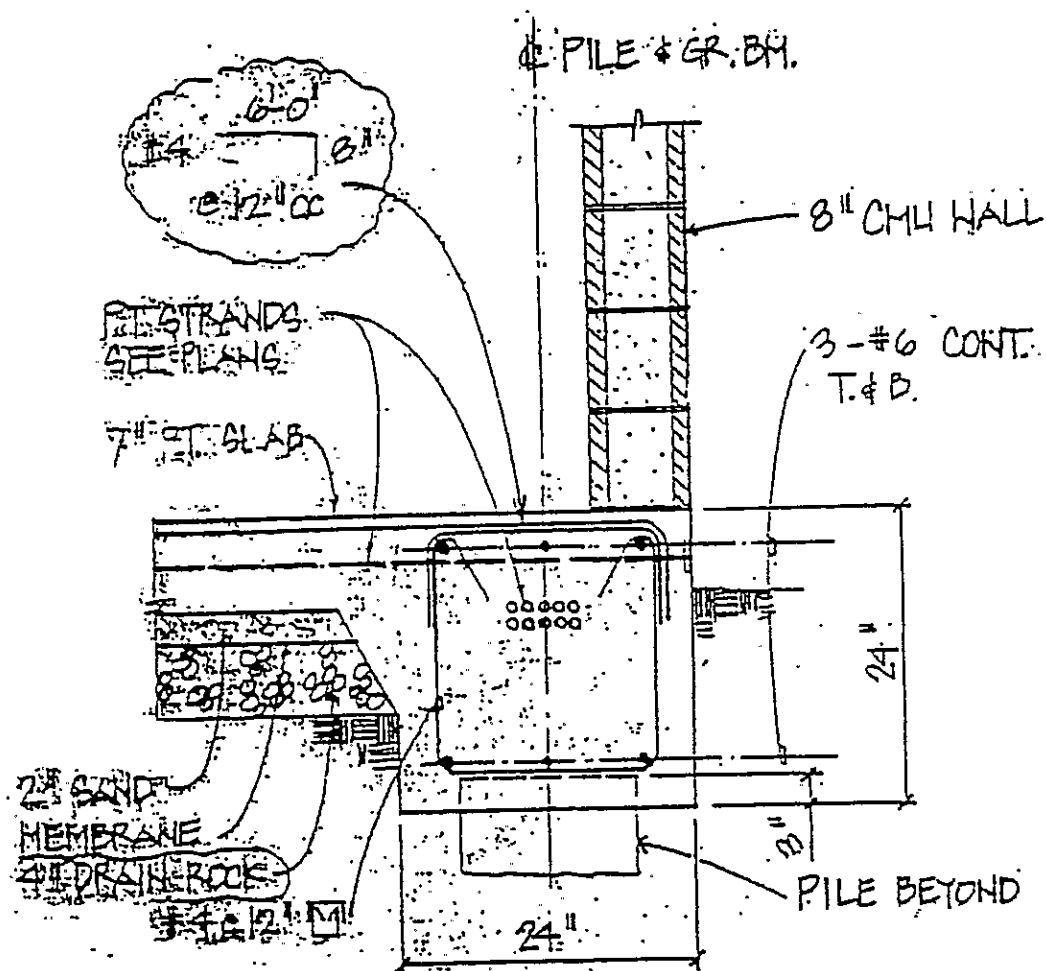


FIGURE 2

## EXHIBIT E

The Baseline Risk Assessment (BRA) for the Site was prepared for the San Francisco Redevelopment Agency by Harding Lawson Associates as part of the Site Assessment Report dated June 28, 1993. The BRA measured levels of chemicals of concern (COC) at the site and projected their effects on workers and residents if there was no attempted remedy. These effects were projected over three phases of building; pre-construction, construction, and post-construction. The BRA measured three types of contact with the COCs, inhalation of soil, ingestion of soil, and skin contact with the soil.

Those chemicals found to be COCs at the 1009 Mission Site were: Arsenic, Chromium (as Chromium VI), Lead, Thallium, and carcinogenic PNAs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene.

**Pre-Construction Scenario/Hypothetical Future Onsite Residents:**

Noncarcinogenic adverse health effects for both average and reasonable maximum exposure (RME) exposures may be expected from dermal contact and ingestion of soil containing lead and thallium, especially by children, assuming site conditions as being unpaved; whereby, the residential population could come into contact with these chemicals in soil.

In addition to the above, excess cancer risks may be expected due primarily to dermal contact and ingestion of soil due to arsenic and carcinogenic PNAs for the average and RME scenarios. Estimates for inhalation of indoor air dusts by children for the RME scenario slightly exceed the Department of Toxic Substances Control (DTSC) target risk criteria. Again, these scenarios conservatively assume barriers and risk management measures are not developed for the Site to prevent exposures to a population such as residential children.

**During Construction Scenario, Construction Workers:**

Noncarcinogenic adverse health effects may be expected from incidental ingestion of soil by onsite construction workers primarily due to lead and cumulative exposures to a mixture of COCs, under baseline conditions if health and safety measures are not implemented to prevent or minimize exposures during construction activities.

Excess cancer risks are not expected for any exposure pathway under the average scenario. Under the RME scenario, excess cancer risks may be expected from dermal contact and incidental ingestion of soil by onsite construction workers, due mostly to cumulative exposures from COCs in soil.

Exposure to chromium VI from ingestion of soil is expected to be slightly in excess of the Proposition 65 no significant risk level, assuming a worst-case scenario for onsite construction workers.

### **During Construction Scenario - Offsite Residents/Workers**

Exposures to offsite residents and workers are not expected as a result of construction activities and may in fact be negligible, especially if risk management measures are implemented during construction.

### **Post-Construction - Onsite Residents**

Noncarcinogenic adverse health effects may be expected from dermal contact and ingestion of soil containing lead and thallium especially for children, assuming a release of soil from a potential crack in the future building foundation encapsulating the site.

Excess cancer risks may be expected from ingestion of soil due to arsenic and carcinogenic PNAs especially under dermal contact and RME scenarios for children. Again, this conclusion is based on the unlikely event that a crack in the foundation would make soil available for direct contact exposures.

Based on the above conclusions, it is expected that 1009 Mission Street may present health risks to hypothetical future residents assuming that the site soil is not encapsulated by pavement or a building foundation that would sustain seismic activity. Onsite construction workers may also be impacted assuming baseline conditions (i.e., no risk management measures). On the basis of these conclusions and the results of the site investigations, it is expected that construction plans and remedial alternatives can be developed for the site so as to minimize, if not present negligible exposures to construction workers, on- and offsite workers and residents, pre-, during and post-construction of the Site.

Based on the highly conservative scenarios used in the BRA, it is expected that actual risks from exposures to the COCs originating from the site are not likely to exceed risks from the RME scenario, and are, likely to be much lower than the risks predicted from this evaluation.



If contaminated soils should become uncovered, exposure to the contaminated soils may occur as described above. Potential human health effects resulting from exposure are discussed below. This is not a complete listing of effects. Please see the Baseline Risk Assessment for a more complete discussion.

Arsenic. Chronic arsenic poisoning, whether through ingestion or inhalation, may manifest as disturbances of the digestive system such as loss of appetite, cramps, nausea, constipation or diarrhea. Liver damage may occur, resulting in jaundice. Arsenic can cause a variety of skin abnormalities, including itching, pigmentation and even cancerous changes. Acute arsenic poisoning from ingestion results in marked irritation of the stomach and intestines with nausea, vomiting and diarrhea.

Chromium (as Chromium VI). In the hexavalent state, chromium compounds are irritants and corrosive, and can enter the body by ingestion, inhalation, and through the skin. Acute exposure to dust or mist may cause coughing and wheezing, headache, dyspnea, pain on deep inspiration, fever, and loss of weight. Chromium VI is listed as a carcinogen under Proposition 65.

Lead. Acute exposure to lead may produce fatigue, headache, aching muscles and bone, gastrointestinal disturbances, sleep disturbance, abdominal pain and decreased appetite. Chronic exposure can lead to irreversible vascular sclerosis, irreversible brain damage, tubular cell atrophy, interstitial fibrosis, and glomerular sclerosis. Anemia, due to the inhibition of hemoglobin synthesis and a reduction in the life span of circulating red blood cells, is an early manifestation of lead poisoning. Lead is listed as a reproductive toxicant under Proposition 65.

Thallium. Acute ingestion of large doses (up to 1 gram) of thallium sulfate has caused death due to cardiac or respiratory failure. Acute oral exposure has resulted in hair loss, neurological effects, lung damage, cardiac damage, renal damage, liver damage, and gastrointestinal effects including abdominal pain, vomiting, diarrhea, and constipation. Workers chronically exposed via inhalation may develop peripheral nervous system effects, including paresthesia, numbness of fingers and toes, muscle cramps and impaired peripheral nerve conduction.

Carcinogenic Polycyclic aromatic hydrocarbons (PNAs). Each of the PNAs listed as chemicals of concern at this Site, except chrysene, is listed as a carcinogen under Proposition 65.